

## 5. Microservices using Service Discovery and Config Server based on Consul

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**Github:** [https://github.com/khristinakokolus/microservices\\_architecture.git](https://github.com/khristinakokolus/microservices_architecture.git)

All code is in the *micro\_consul* branch.

Result adding Key/Values to Consul:

```
Success! Data written to: hz_map_node_1
Success! Data written to: hz_map_node_2
Success! Data written to: hz_map_node_3
Success! Data written to: distributed_map_name
Success! Data written to: hz_queue_node_1
Success! Data written to: hz_queue_node_2
Success! Data written to: message_queue_name
```

Sending 10 POST requests with 10 messages.

Facade service console:

```
* Debug mode: off
2022-05-26 02:09:11 INFO      * Running on http://127.0.0.1:8080/ (Press CTRL+C to quit)
2022-05-26 02:09:50 INFO      127.0.0.1 - - [26/May/2022 02:09:50] "POST /facade_service HTTP/1.1" 200 -
2022-05-26 02:09:51 INFO      127.0.0.1 - - [26/May/2022 02:09:51] "POST /facade_service HTTP/1.1" 200 -
2022-05-26 02:09:53 INFO      127.0.0.1 - - [26/May/2022 02:09:53] "POST /facade_service HTTP/1.1" 200 -
2022-05-26 02:09:54 INFO      127.0.0.1 - - [26/May/2022 02:09:54] "POST /facade_service HTTP/1.1" 200 -
2022-05-26 02:09:55 INFO      127.0.0.1 - - [26/May/2022 02:09:55] "POST /facade_service HTTP/1.1" 200 -
2022-05-26 02:09:56 INFO      127.0.0.1 - - [26/May/2022 02:09:56] "POST /facade_service HTTP/1.1" 200 -
2022-05-26 02:09:57 INFO      127.0.0.1 - - [26/May/2022 02:09:57] "POST /facade_service HTTP/1.1" 200 -
2022-05-26 02:09:58 INFO      127.0.0.1 - - [26/May/2022 02:09:58] "POST /facade_service HTTP/1.1" 200 -
2022-05-26 02:09:59 INFO      127.0.0.1 - - [26/May/2022 02:09:59] "POST /facade_service HTTP/1.1" 200 -
2022-05-26 02:10:00 INFO      127.0.0.1 - - [26/May/2022 02:10:00] "POST /facade_service HTTP/1.1" 200 -
```

Launched 3 logging services.

First logging service console:

```
* Debug mode: off
2022-05-26 02:09:13 INFO      * Running on http://127.0.0.1:8083/ (Press CTRL+C to quit)
2022-05-26 02:09:51 INFO      {'message': 'msg2', 'message_uuid': 'd5dca3f6-18ee-4782-b101-62dac6f88b97'}
2022-05-26 02:09:51 INFO      127.0.0.1 - - [26/May/2022 02:09:51] "POST /logging_service HTTP/1.1" 200 -
```

## Second logging service console:

```
* Debug mode: off
2022-05-26 02:09:15 INFO      * Running on http://127.0.0.1:8084/ (Press CTRL+C to quit)
2022-05-26 02:09:50 INFO      {'message': 'msg1', 'message_uuid': '447562e2-4da1-4346-af99-3cb8f8ebdd99'}
2022-05-26 02:09:50 INFO      127.0.0.1 - - [26/May/2022 02:09:50] "POST /logging_service HTTP/1.1" 200 -
2022-05-26 02:09:53 INFO      {'message': 'msg3', 'message_uuid': 'cace1c74-ce2b-4c55-8f55-12d332722e05'}
2022-05-26 02:09:53 INFO      127.0.0.1 - - [26/May/2022 02:09:53] "POST /logging_service HTTP/1.1" 200 -
2022-05-26 02:09:55 INFO      {'message': 'msg5', 'message_uuid': '9b099c10-f835-4bec-9406-11bc6d33dcc2'}
2022-05-26 02:09:55 INFO      127.0.0.1 - - [26/May/2022 02:09:55] "POST /logging_service HTTP/1.1" 200 -
2022-05-26 02:09:59 INFO      {'message': 'msg9', 'message_uuid': 'd7dcc11a-5df9-4e0c-a4cf-21bbec2f4da7'}
2022-05-26 02:09:59 INFO      127.0.0.1 - - [26/May/2022 02:09:59] "POST /logging_service HTTP/1.1" 200 -
2022-05-26 02:10:00 INFO      {'message': 'msg10', 'message_uuid': '8015c9e6-fa65-4507-a02b-55e2378b3672'}
2022-05-26 02:10:00 INFO      127.0.0.1 - - [26/May/2022 02:10:00] "POST /logging_service HTTP/1.1" 200 -
```

## Third logging service console:

```
* Debug mode: off
2022-05-26 02:09:17 INFO      * Running on http://127.0.0.1:8085/ (Press CTRL+C to quit)
2022-05-26 02:09:54 INFO      {'message': 'msg4', 'message_uuid': 'c103c8d9-6fc5-43cb-82c8-17fdf981e1f8'}
2022-05-26 02:09:54 INFO      127.0.0.1 - - [26/May/2022 02:09:54] "POST /logging_service HTTP/1.1" 200 -
2022-05-26 02:09:56 INFO      {'message': 'msg6', 'message_uuid': 'f16f2f47-d070-4641-a0d0-c8704bfb2b98'}
2022-05-26 02:09:56 INFO      127.0.0.1 - - [26/May/2022 02:09:56] "POST /logging_service HTTP/1.1" 200 -
2022-05-26 02:09:57 INFO      {'message': 'msg7', 'message_uuid': '3d8c860f-9261-457a-a885-ded299d89737'}
2022-05-26 02:09:57 INFO      127.0.0.1 - - [26/May/2022 02:09:57] "POST /logging_service HTTP/1.1" 200 -
2022-05-26 02:09:58 INFO      {'message': 'msg8', 'message_uuid': 'dcaf54cd-dc76-4d00-8547-2f8c5baa05d5'}
2022-05-26 02:09:58 INFO      127.0.0.1 - - [26/May/2022 02:09:58] "POST /logging_service HTTP/1.1" 200 -
```

From here it can be seen that messages are randomly distributed among the logging service instances.

Launched 2 messages services.

First messages service console:

```
* Debug mode: off
2022-05-26 02:09:19 INFO      * Running on http://127.0.0.1:8081/ (Press CTRL+C to quit)
2022-05-26 02:09:50 INFO      {'message': 'msg1', 'message_uuid': '447562e2-4da1-4346-af99-3cb8f8ebdd99'}
2022-05-26 02:09:53 INFO      {'message': 'msg3', 'message_uuid': 'cace1c74-ce2b-4c55-8f55-12d332722e05'}
2022-05-26 02:09:55 INFO      {'message': 'msg5', 'message_uuid': '9b099c10-f835-4bec-9406-11bc6d33dcc2'}
2022-05-26 02:09:57 INFO      {'message': 'msg7', 'message_uuid': '3d8c860f-9261-457a-a885-ded299d89737'}
2022-05-26 02:09:59 INFO      {'message': 'msg9', 'message_uuid': 'd7dcc11a-5df9-4e0c-a4cf-21bbec2f4da7'}
```

Second messages service console:

```
* Debug mode: off
2022-05-26 02:09:21 INFO      * Running on http://127.0.0.1:8082/ (Press CTRL+C to quit)
2022-05-26 02:09:51 INFO      {'message': 'msg2', 'message_uuid': 'd5dca3f6-18ee-4782-b101-62dac6f88b97'}
2022-05-26 02:09:54 INFO      {'message': 'msg4', 'message_uuid': 'c103c8d9-6fc5-43cb-82c8-17fdf981e1f8'}
2022-05-26 02:09:56 INFO      {'message': 'msg6', 'message_uuid': 'f16f2f47-d070-4641-a0d0-c8704bfb2b98'}
2022-05-26 02:09:58 INFO      {'message': 'msg8', 'message_uuid': 'dcaf54cd-dc76-4d00-8547-2f8c5baa05d5'}
2022-05-26 02:10:00 INFO      {'message': 'msg10', 'message_uuid': '8015c9e6-fa65-4507-a02b-55e2378b3672'}
```

From here it can be seen that messages are randomly gotten from the Message queue to the messages service instances.

GET request output with messages from messages service on 8081 port:

```
HTTP/1.0 200 OK
Content-Type: text/html; charset=utf-8
Content-Length: 146
Server: Werkzeug/2.0.2 Python/3.9.7
Date: Wed, 25 May 2022 23:12:22 GMT

Logging service messages: [msg5, msg2, msg9, msg10, msg6, msg1, msg3, msg8, msg4, msg7]
Messages service messages: [msg1, msg3, msg5, msg7, msg9]

Response file saved.
> 2022-05-26T021223.200.html

Response code: 200 (OK); Time: 1084ms; Content length: 146 bytes
```

GET request output with messages from messages service on 8082 port:

```
HTTP/1.0 200 OK
Content-Type: text/html; charset=utf-8
Content-Length: 147
Server: Werkzeug/2.0.2 Python/3.9.7
Date: Wed, 25 May 2022 23:11:54 GMT

Logging service messages: [msg5, msg2, msg9, msg10, msg6, msg1, msg3, msg8, msg4, msg7]
Messages service messages: [msg2, msg4, msg6, msg8, msg10]

Response file saved.
> 2022-05-26T021155.200.html

Response code: 200 (OK); Time: 1166ms; Content length: 147 bytes
```

Facade service console on GET request:

```
2022-05-26 02:11:54 INFO      Logging service on: http://localhost:8083/logging\_service
2022-05-26 02:11:54 INFO      Message service on: http://localhost:8082/message\_service
2022-05-26 02:11:54 INFO      127.0.0.1 - - [26/May/2022 02:11:54] "GET /facade_service HTTP/1.1" 200 -

2022-05-26 02:12:22 INFO      Logging service on: http://localhost:8084/logging\_service
2022-05-26 02:12:22 INFO      Message service on: http://localhost:8081/message\_service
2022-05-26 02:12:22 INFO      127.0.0.1 - - [26/May/2022 02:12:22] "GET /facade_service HTTP/1.1" 200 -
```

Logging service console on GET request:

```
2022-05-26 02:11:54 INFO      127.0.0.1 - - [26/May/2022 02:11:54] "GET /logging_service HTTP/1.1" 200 -
```

Messages service console on GET request:

```
2022-05-26 02:12:22 INFO      127.0.0.1 - - [26/May/2022 02:12:22] "GET /message_service HTTP/1.1" 200 -
```

Consul UI:

consul	No service checks	127.0.0.1:8300
facade_service:8080	No service checks	localhost:8080
logging_service:8083	No service checks	localhost:8083
logging_service:8084	No service checks	localhost:8084
logging_service:8085	No service checks	localhost:8085
message_service:8081	No service checks	localhost:8081
message_service:8082		